

Boston, June 8, 1900

My dear Mr. Chanute,

Your article in June McClure's interested me and I am glad to see you are working if only with models. My interest is absolutely as strong as ever but my money is low. I have spent considerable in publishing a story written by myself and am short for aeronautical purposes. However I have built a model of my No. 8 surface (see my lecture) and will try it in free flight. I can say positively that in circular movement it offers less resistance to forward motion than either Lilienthal's or Hargrave's surfaces and the roughened under surface decreases this resistance very much. I beg you will make a test of it for I would like your judgement on it. You have my lecture and blue prints I believe; if not you will find the whole thing in the British Aeronautical Society's publication 3 or 4 number back.

I am also under the impression that the stability of surface has not been studied from the proper standpoint. Their stability has been supposed to depend mostly upon the center of pressure. Now in the Hargrave surface at a zero angle the C.P. is in the centre of the surface for this is where the vortex turns, thus [Skizze]

My experiments agree with H's on this point. Why then is this surface so unstable fore and aft? (see H. pub. No. 3) It is in my opinion because there is no care taken in separating the air at the front so that the vertical component of air pressure at this point is downward. Now my surface No. 8 does away with this, the air being separated [?] and thrown both ways the vertical components neutralize each other and hence it ought to follow that the surface will be more stable. Blue Hill experiments corroborate H. in the fact that his surface is the most efficient of any, but he has taken no care of its entrance into the air. I know from experiment the bow on No. 8 decreases the resistance (as it should do in theory) and I think I can demonstrate that it will also increase stability, two very important points. Some experiments made by Frenchmen with solids rolling down hill on a wire show that a cone thus, [Skizze] moving in the direction of the arrow is stable in its flight. Now my No. 8 follows this, thus [Skizze] while H's is thus [Skizze].

As soon as I make some flights I will write you sending photographs and details, and in the meantime pray let me know what you are doing and how things are progressing.

Yours as ever

A. A. Merrill